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PLAN OF CORRECTION
SOUTHERN PACIFIC TRANSPORTATION COMPANY
HIGH STREET PROPERTY

OAKLAND, CALIFORNIA

APRIL 26, 1989

Prepared For:

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1. How did they detect lead-benzene etc. by a Phase I. Was there UST's.

1. INTRODUCTION

This plan of correction presents the scope of work Ecology and Environment, Inc. (E & E) will undertake to characterize potential soil and groundwater contamination at Southern Pacific Transportation Company's (SPTCo.'s) property located at 744 and 758 High Street in Oakland, California. This plan of correction is in response to a request by the Alameda County Health Care Services Agency (ACHCSA) per the requirements of 22 California Code of Regulations (CCR) Section 66328.

The request for a plan of correction by ACHCSA is a result of the detection of total oil and grease (TOG), polychlorinated biphenyls (PCBs), lead, benzene, and a variety of volatile organic chemicals (VOCs) in surface soils at the property.

A phased approach will be implemented to characterize the nature, extent, and sources of contamination at the property. The initial phase will consist of collecting samples from 12 soil borings on the property. If the results of the soil sampling reveal soil contamination that could potentially contribute to groundwater contamination beneath the property, a second phase of site characterization will be conducted consisting of the installation and sampling of three groundwater monitoring wells.

Section 2 of this plan of correction discusses the site history, the environmental setting, and the current understanding of the extent of contamination on and near the property. Section 3 presents E & E's plan for characterizing potential soil and groundwater contamination, including a rationale for the proposed scope of work and a detailed discussion of E & E's technical approach and field procedures. Quality assurance and quality control methods and protocols are described in Section 4. Section 5 discusses mobilization and logistics of the field investigation, Section 6 outlines data evaluation and reporting procedures; Section 7 describes health and safety protocols to be followed during field activities.

2. SITE DESCRIPTION

2.1 SITE HISTORY

According to available information in SPTCo files, SPTCo. acquired the property located at 744 and 758 High Street in Oakland, California (see Figure 2-1) in 1872 from the Contract and Finance Company. Use of the property prior to 1872 is currently unknown. The property is currently occupied by two businesses, Scrap Metal Supply (SMS) and Kayak America Works (KAW). The locations of these two businesses are shown on Figure 2-2. SMS is a metal recycler and occupies approximately 56,000 square feet in the southern part of the property. KAW is an auto body repair shop and occupies approximately 26,000 square feet in the northern part of the property. SMS began leasing the southern portion of the property from SPTCo. in 1956 and SPTCo. began leasing out the northern 26,000 square feet in 1966. Initially, the northern portion was used for a sheet and metal plant; the date when KAW began operations is currently unknown.

2.2 ENVIRONMENTAL SETTING

The SPTCo. property on High Street in Oakland, California is situated in a primarily light to heavy industrial area approximately 0.4 miles from the Alameda Estuary and San Leandro Bay (see Figure 2-1).

Stratigraphic and hydrogeologic information for the site vicinity discussed in the following sections was compiled from a variety of published U.S. Geological Survey reports and maps and from information contained in consultant's reports pertaining to nearby sites where environmental investigations have been conducted.

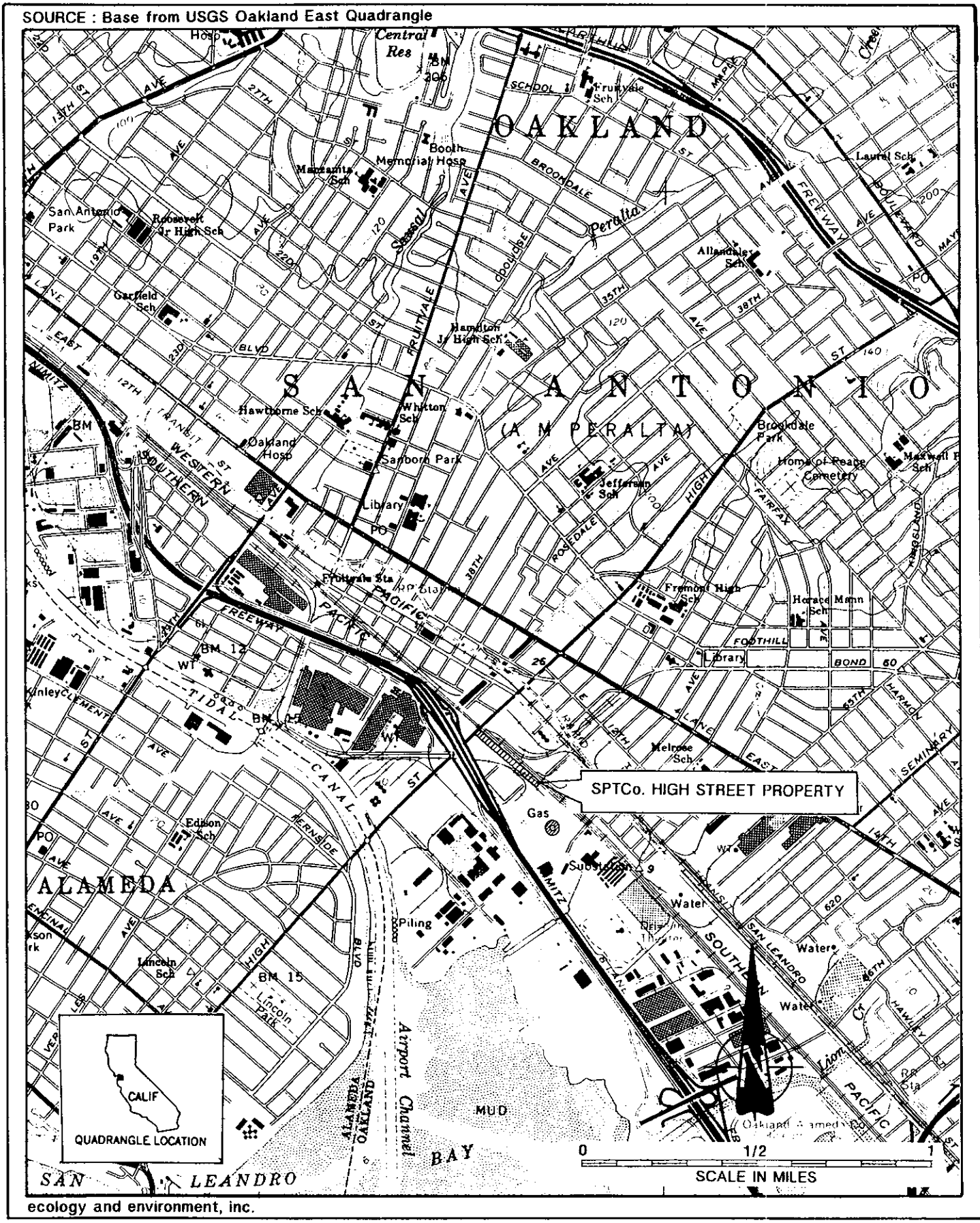

Figure 2-1 SOUTHERN PACIFIC TRANSPORTATION COMPANY
HIGH STREET PROPERTY LOCATION MAP

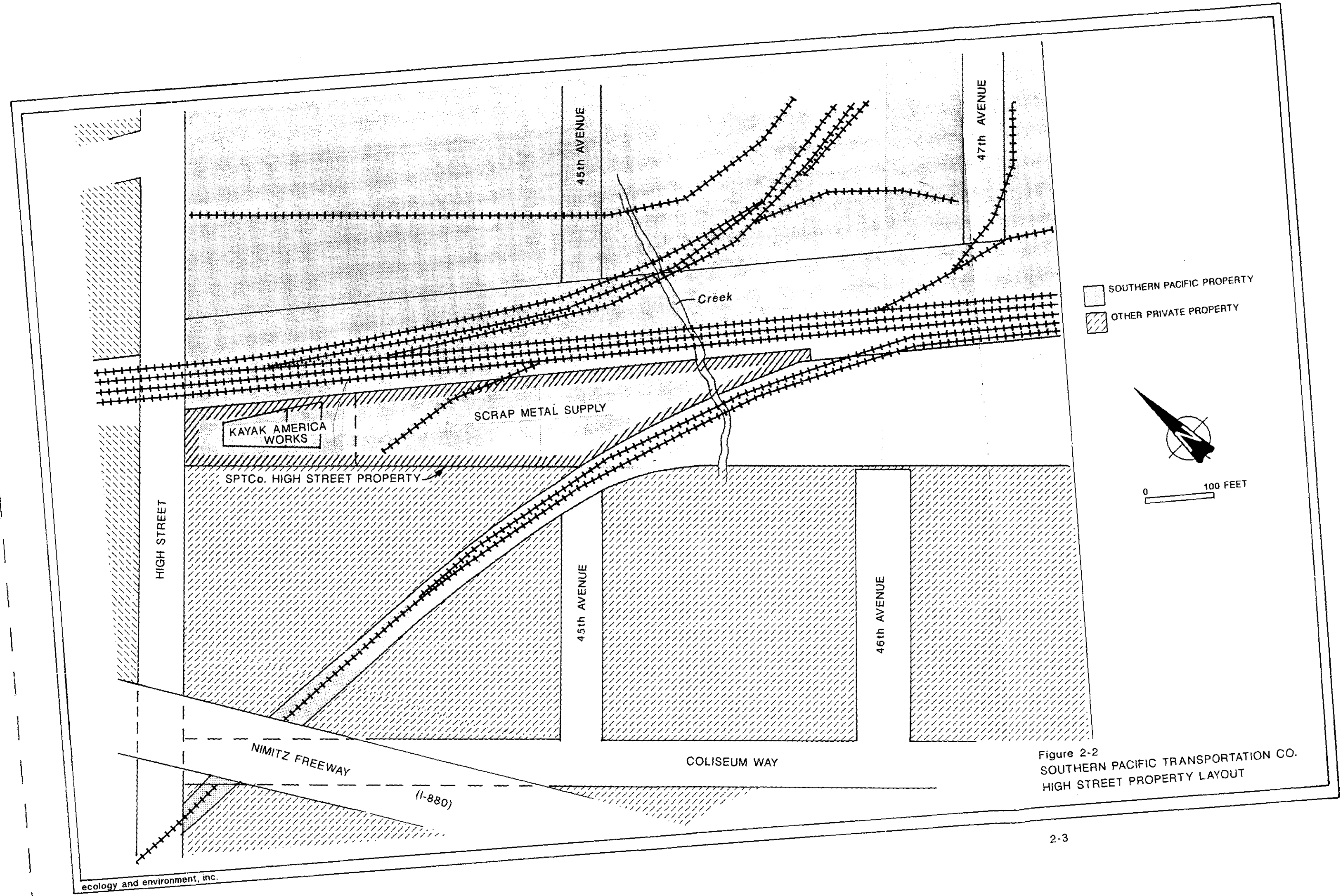

Figure 2-2
SOUTHERN PACIFIC TRANSPORTATION CO.
HIGH STREET PROPERTY LAYOUT

2.2.1 Stratigraphy

The area in the vicinity of the property is underlain by alluvial deposits which are predominantly clay but which contain some interbedded layers and lenses of more sandy and gravelly sediment. The stratigraphy beneath the site consists of, from the surface down, approximately 10 feet of clayey fine sand and clayey silt; approximately 20 feet of predominantly clay; approximately 25 to 30 feet of clayey sand and gravel; and clay of unknown thickness that contains some layers of clayey to clean sands and gravels.

2.2.2 Hydrogeology

Shallow, unconfined groundwater occurs at a depth of about 10 to 12 feet beneath the property. The water table is tidally influenced with fluctuations on the order of several tenths of a foot to a foot. The upper unconfined water-bearing zone generally flows to the southwest with a gradient of approximately 0.01 to 0.02 feet/foot. The hydraulic conductivity of the shallow, unconfined zone is low to moderate, on the order of 1×10^{-4} cm/sec. Assuming an average porosity of 0.25 for the deposits in this zone, the expected horizontal flow velocity would be about 1/4 inch per day. Confined groundwater occurs at a depth of about 30 to 40 feet beneath the property, below the 20 foot predominantly clay layer.

There are no actively producing wells in the vicinity of the property. The low hydraulic conductivity and low volume of the shallow unconfined zone precludes it from being a reliable source of water.

Deeper, confined, water-bearing zones beneath the property are currently not being used for water supply and the generally clayey nature of even the more permeable layers indicate that these zones should have only low to moderate well yields.

2.3 OFF-SITE SOURCES OF CONTAMINATION

E & E's background review revealed a number of sites with soil and/or groundwater contamination within 1/2 mile of the SPTCo. High Street property. The locations of these sites are shown on Figure 2-3 and the names and addresses are presented in Table 2-1. The information concerning nearby environmental sites was compiled from public records of the CA Department of Health Services (DOHS) and the CA Regional Water Quality Control Board (RWQCB). Each site is described briefly below:

Ed's Auto Supply. Ed's Auto Supply is located next door to the SPTCo., High Street property on High Street, to the southwest. The property was formerly occupied by a dry cleaning business and recently an underground storage tank (UST) used by the dry cleaning business was removed. The dry cleaning business was in operation about 50 years ago and the dry cleaning fluid used and stored in the UST was a hydrocarbon-base product. Soil and groundwater was sampled when the UST was removed, however, the results are not yet available.

Exxon. A former Exxon gas station was located approximately 1/2 block to the southwest of the SPTCo. property. In 1987, three underground fuel storage tanks and one underground waste oil tank were removed. Soil contamination was detected at concentrations of total volatile hydrocarbons in excess of 1,000 ug/kg in 5 of 6 samples collected.

In 1988, eight soil borings were drilled and eight monitoring wells were installed. Hydrocarbon levels detected in soil samples ranged from non detected to 2,689 ug/kg. Floating product was detected in four monitoring wells and hydrocarbon concentrations ranging from 0.001 to 29.3 ug/l were detected in four monitoring wells.

Owens-Illinois. This facility is located approximately 2,200 feet to the west of the SPTCo., High Street property. In July, 1986 a fuel oil leak was discovered and a 16,600 gallon fuel oil tank was removed. Sixteen soil borings were drilled and 18 groundwater monitoring wells and one recovery well were installed. Several feet of floating product was detected in one monitoring well and dissolved volatile hydrocarbons were detected in groundwater at levels as high as 13,000 mg/l. Soil at the facility contained volatile hydrocarbons at levels as high as 10,000 mg/kg. In addition to hydrocarbon contamination, trichloroethene was detected at 0.03 and 0.014 mg/l and trichloroethane was detected in three upgradient wells at levels up to 19 mg/l.

Learner Company. This property is located approximately 700 feet west of the SPTCo. property. An UST file for this property exists at the RWQCB.

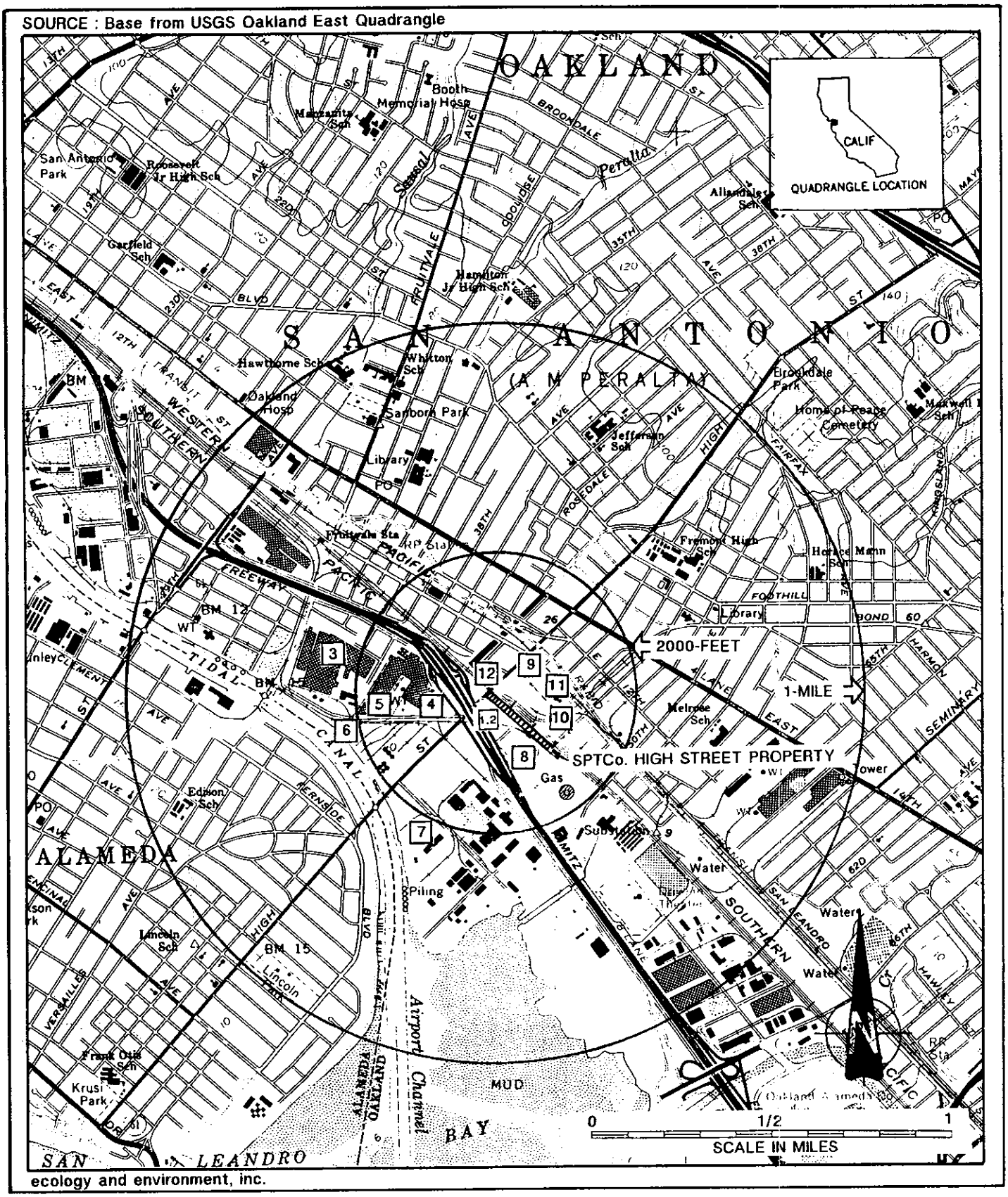

Figure 2-3 LOCATIONS OF SITES WITH SOIL AND/OR GROUNDWATER CONTAMINATION NEAR THE SPTCo. HIGH STREET PROPERTY

Table 2-1

Sites Near the SPTCo., High Street Property
with Soil and/or Groundwater Contamination

Site Number[1]	Site Name and Address
1	Ed's Auto Supply, 757 High Street
2	Exxon, 720 High Street
3	Owens-Illinois, 3600 Alameda Avenue
4	Learner Company, 3675 Alameda Avenue
5	U.S. Cold Storage, 3925 Alameda Avenue
6	Eko-Tek, 4200 Alameda Avenue
7	ABF Freight Systems, 4575 Tidewater Avenue
8	Learner, 768 46th Avenue
9	Everett Stearn Property, 44th Avenue
10	Peterson Properties, 1066 47th Avenue
11	Chevron Asphalt Terminal, 4525 San Leandro Street
12	The Clorox Company, 850 42nd Avenue

[1]Site numbers correspond to the location numbers shown on Figure 2-3.

U.S. Cold Storage. At this property, located approximately 900 feet west of the SPTCo. property, two underground storage tanks (one for diesel and one for gasoline) were removed in 1988. Two soil samples were collected from beneath each tank and one groundwater sample was collected. Results indicate that soil samples from the diesel tank area (which were analyzed only for extractable hydrocarbons, as diesel) contained 210 and 450 ug/kg and the soil samples from the gasoline tank (which were analyzed for volatile hydrocarbons as gasoline) contained 720 and 190 ug/kg. The groundwater sample was analyzed for extractable hydrocarbons (as diesel) and contained 150 ug/l. It was also noted that the groundwater sample contained a lighter boiling point hydrocarbon compound than diesel.

Eko-Tek Lube. This business is located approximately 2,000 feet to the west of the SPTCo. High Street property and operated as a waste oil recovery and recycling facility. Waste oil, contaminated with benzene, toluene, phenol, and lead was stored on site in tanks and some of this waste has spilled onto the ground. The nature and extent soil contamination and whether or not groundwater has become contaminated has not been determined.

ABF Freight Systems. At this facility, located approximately 1,800 feet south of the SPTCo. property on the Alameda Estuary, two diesel and two oil underground storage tanks were removed between 1986 and 1987. Prior to 1983, one of the diesel tanks was used for gasoline. Following the report of an unauthorized release and the removal of the two oil tanks in 1986, total fuel hydrocarbons were detected in soil at 34 ug/kg and in groundwater, motor fuel was detected at 4.5 ug/l, benzene was detected at 1.6 ug/l, and total xylenes were detected at 1.0 ug/l. In early 1987, one diesel tank was removed and TPHs were detected at concentrations between 100 ug/kg and 700 ug/kg in soil and at 721 ug/l in groundwater. The remaining diesel tank was removed in late 1987; associated soil sampling showed 170 ug/kg TPH and groundwater sampling revealed 0.46 ug/l extractable hydrocarbons.

Learner. At this site, located approximately one block south of the SPTCo. property, one 1,000 gallon regular gasoline underground storage tank was removed in 1988. Two soil samples were collected and analyzed for benzene, toluene, xylene, and ethylbenzene (BTXE), total petroleum hydrocarbons (TPH) as gasoline, and total lead. Results were reported as "low" for all parameters.

Everett Stearn Property. This property is located approximately 300 feet to the northeast of the SPTCo. property. At this property a diesel underground storage tank was removed in 1988, and a groundwater monitoring well was installed and sampled. TPHs were not detected.

Peterson Properties. This property is located approximately 500 feet to the east of the SPTCo. property. An UST file exists for this property exists at the RWQCB.

Chevron Asphalt Terminal. This property is located approximately 600 feet to the northeast of the SPTCo. property. An UST file exists for this facility at the RWQCB.

The Clorox Company. This site is located approximately 1/2 block from the SPTCo. property on High Street, to the north. This site contains soil and groundwater contaminated with mercury; concentrations as high as 9,600 ug/l have been detected in groundwater. Construction of a subsurface drainage system and treatment plant have been completed and remediation is currently in progress. Remediation is anticipated to last 10 to 15 years.

The businesses discussed above indicate that the SPTCo. High Steet property is surrounded by sites where soil and/or groundwater contamination have been detected. The predominant contaminant appears to be petroleum hydrocarbons associated with leaking underground fuel storage tanks. Four of the 11 sites discussed above occur in a generally upgradient direction from the SPTCo. property (the Clorox company, Everett Stearn Property, the Chevron Asphalt Terminal, and the Peterson Properties). The site closest to the SPTCo. property is Ed's Auto Supply, which is located adjacent to the property to the southwest in a downgradient direction.

2.4 ANALYSIS OF EXISTING DATA

In July of 1988, at the request of the owner of the Scrap Metal Supply business, Property Contamination Control (PCC) conducted soil sampling at the SPTCo. High Street property. A total of seven discrete near-surface soil samples were collected at the approximate locations shown on Figure 2-4. Samples from four locations were combined to yield one composite analysis (denoted as No. 4 on Figure 2-4). Samples from locations 1,2, and 3 were analyzed individually. The resulting four samples were analyzed for total oil and grease by standard method 503E, PCBs by EPA method 8080, EPA extraction procedure-toxicity (EP-TOX), and volatile organics by EPA method 8240. Analytical results are presented in Table 2-2 (only those metals that were detected in a sample are presented in the table).

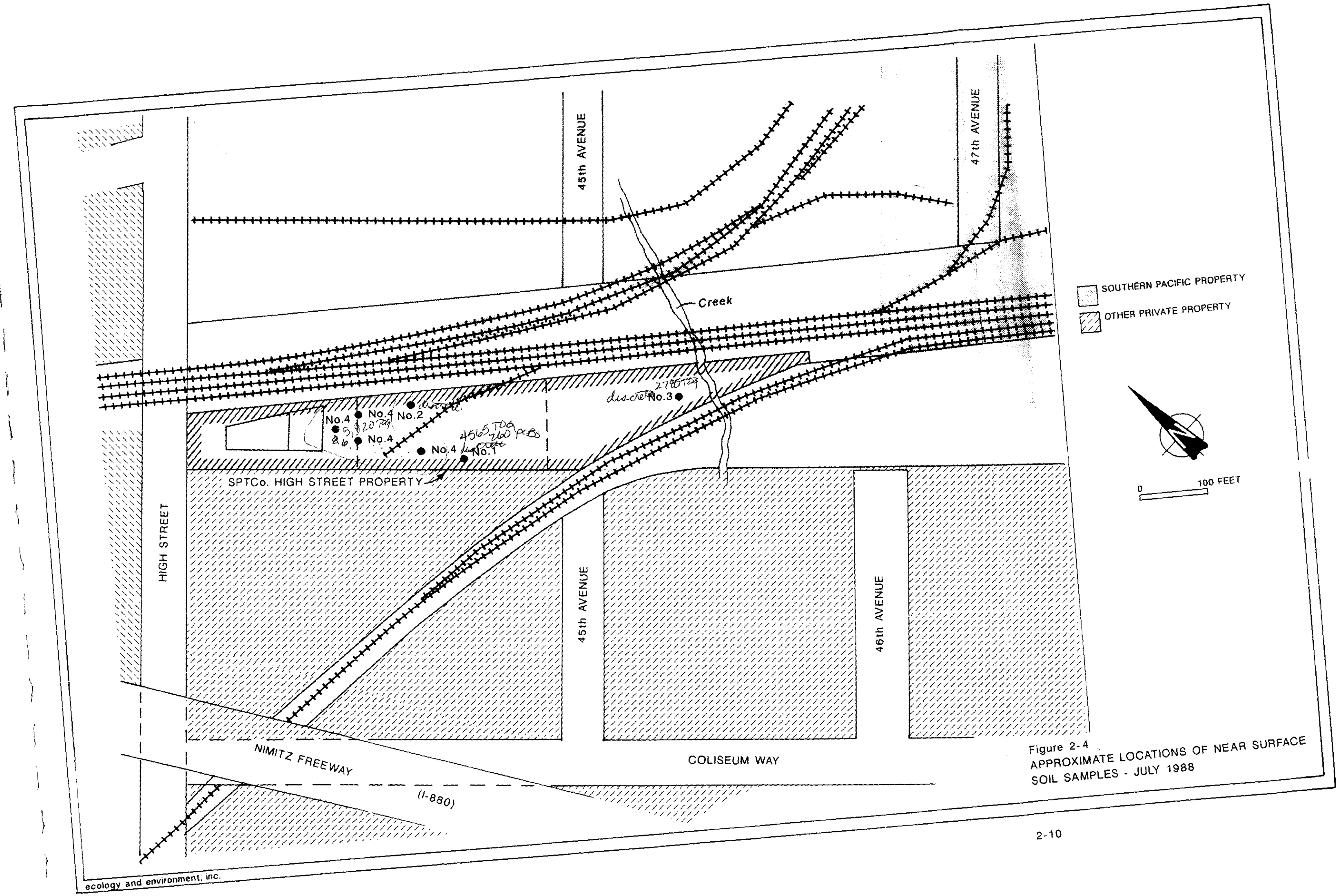

Figure 2-4
APPROXIMATE LOCATIONS OF NEAR SURFACE SOIL SAMPLES - JULY 1988

Table 2-2

Soil Sample Results
July 1988 Sampling (mg/kg)

Sample Number Type	#1 Discrete	#2 Discrete	#3 Discrete	#4 Composite of four locations
Depth	8"	12"	12"	0 to 6"
Total Oil and Grease	4,565	58	2,785	5,920
PCBs	260	ND	ND	8.6
Barium	0.498	<0.33	<0.33	0.942
Cadmium	0.031	ND	ND	0.143
Copper	0.106	ND	ND	0.525
Iron	0.487	0.253	0.333	0.370
Manganese	0.561	0.082	0.489	6.98
Nickel	<0.17	ND	ND	0.218
Lead	<0.17	ND	ND	0.339
Zinc	3.61	0.553	0.610	27.1
Trichloro-fluoromethane	ND	ND	1.0	ND
Carbon Disulfide	7.6	1.2	3.8	ND
Methylene Chloride	8.5	2.1	3.2	ND
Chloroform	1.5	0.9	0.7	ND
Toluene	1.3	ND	ND	ND
Xylene	1.3	ND	ND	ND
1-chloro-2-methylbenzene	<6.25	<6.25	<6.25	ND
1,2,3-Trimethylbenzene	<6.25	ND	ND	ND
1,2,3-Trimethylbenzene	<6.25	ND	ND	ND
1,2,4-Trimethylbenzene	<6.25	ND	ND	ND
1-methyl-3-(methylethyl) benzene	ND	ND	ND	ND

d/be/sphigh/wp

The sample results reveal that near-surface soils at the Scrap Metal Supply business contain TOG, PCBs, and a variety of volatile organic chemicals (primarily toluene, xylene, and other aromatic petroleum compounds). Total oil and grease occurred at levels above that which the ACHCSA considers a threat to groundwater quality or public health and safety (1,000 mg/kg) in three of the four analyses. PCBs occurred above the Total Threshold Limit Concentration (TTLC) of 50 mg/kg in one of the four analyses.

The sample results discussed above resulted in the ACHCSA requesting that SPTCo. develop a plan of correction report to characterize and remediate soil and/or groundwater contamination on the property.

3. SITE CHARACTERIZATION METHODOLOGY

The objectives of the site characterization activities are to determine the nature, levels, and extent of soil and groundwater contamination at the SPTCo. High Street property. The need for remediation will be assessed based on the data obtained and an evaluation of applicable regulations and/or guidelines. As stated previously, the site characterization activities described in this section are a result of the detection of TOG and PCBs in near-surface soils at levels that exceed county and/or state action levels.

The field investigation will be conducted in a phased manner, with the initial phase consisting of soil boring and sampling activities. If on-site soil sampling reveals subsurface soil contamination that could potentially be impacting groundwater, a second phase of field investigation activities will be conducted, consisting of the installation and sampling of three groundwater monitoring wells.

3.1 SOIL CHARACTERIZATION

The objective of the soil characterization is to determine the levels and extent of soil contamination at the property. To accomplish this characterization, E & E will drill and collect samples from 12 borings at locations shown on Figure 3-1. Soil boring locations were selected to form a grid pattern of approximately 100 feet by 50 feet covering the SMS lease. One boring will be located adjacent to High Street to provide background data.

Soil samples will be collected at five foot vertical intervals from each boring starting from about six inches below the ground surface (6-12 inches) and extending to the water table, which is anticipated to be approximately 10 to 12 feet below ground surface. This will result in

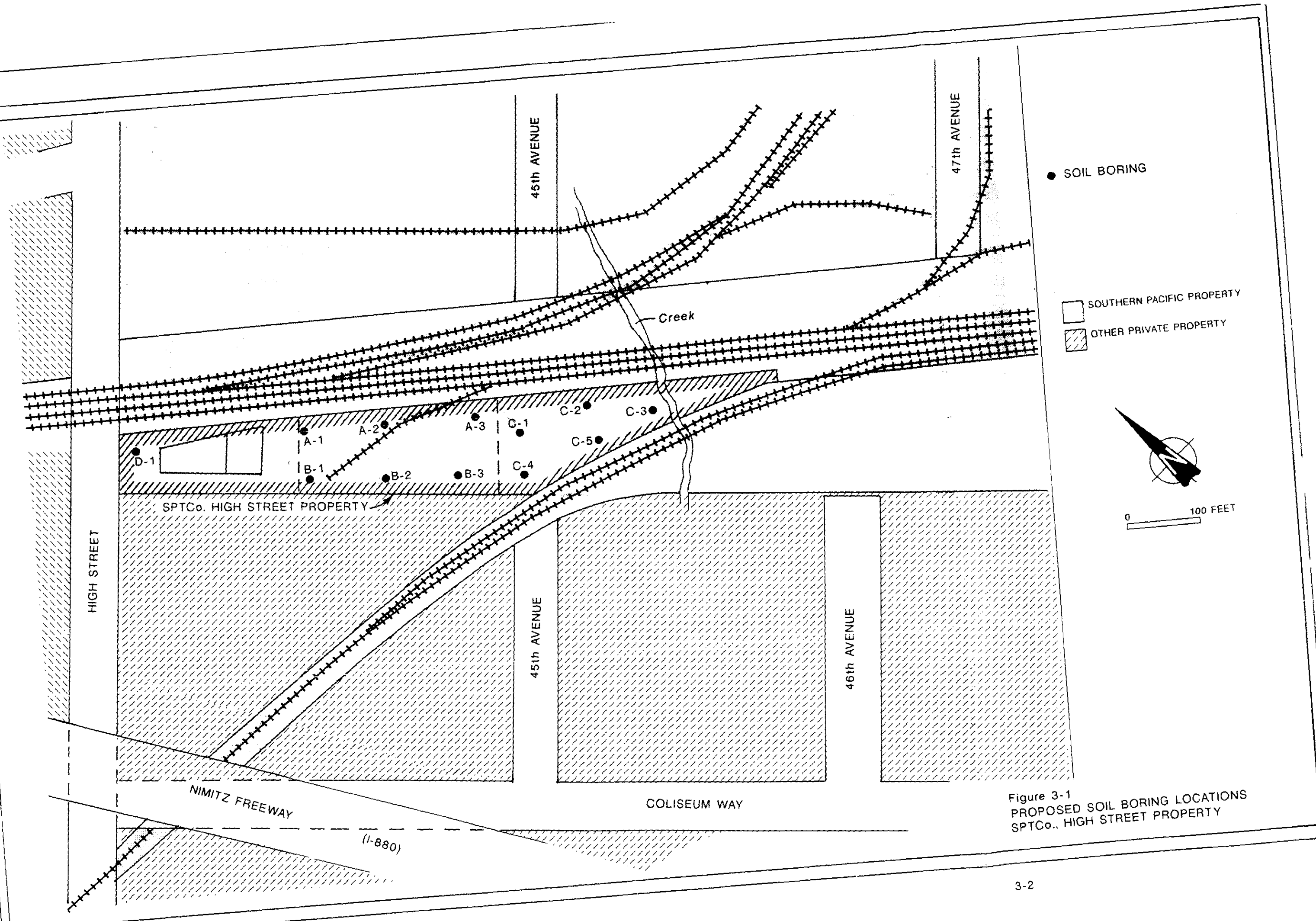

Figure 3-1
PROPOSED SOIL BORING LOCATIONS
SPTCo., HIGH STREET PROPERTY

three soil samples being collected from each boring. The top 6 inches of soil will not be considered because of the disturbance of soils during the demolition activities on the SMS property.

Soil borings will be advanced with a 6 7/8 I.D. hollow stem auger and soil core samples will be obtained from the specified depths (0 to 1.5 feet; 5 to 6.5 feet; and 10 to 11.5 feet) using a 1.5 foot long, two-inch diameter, split-tube sampler equipped with three 6-inch long brass sleeves. The middle sleeve from each core will be retained.

Discrete soil core samples will be composited horizontally. The compositing scheme is presented in Table 3-1. Two groups of three boring locations (A and B borings) and one group of five boring locations (C borings) will be composited. Samples from the boring adjacent to High Street (the D boring) will be analyzed individually. All samples will be composited and analyzed at E & E's Analytical Services Center. A total of thirteen soil samples (including one replicate) will be analyzed during the soil characterization phase of the investigation.

As a quality control measure, one replicate soil sample will be collected for every 10 environmental soil samples collected or one replicate will be collected each day of sampling. For the replicate sample, two adjacent brass sleeves will be submitted and the laboratory will be instructed to analyze the bottom portion of the shallower sleeve and the top portion of the deeper sleeve.

Soil samples will be analyzed for PCBs, TOG, TPH, purgeable organic compounds, and the heavy metals listed in Title 22 CCR. Based on available soil data from the PCC sampling, these parameters should provide adequate characterization of soils at the property.

Table 3-1

Soil Sample Compositing Scheme

Composite Number	Depth (feet)	Discrete Samples
1	0.5-1.0	A-1a[1] A-2a A-3a
2	5.5-6.0	A-1b[2] A-2b A-3b
3	10.5-11.0	A-1c[3] A-2c A-3c
4	0.5-1.0	B-1a B-2a B-3a
5	5.5-6.0	B-1b B-2b B-3b
6	10.5-11.0	B-1c B-1c B-3c
7	0.5-1.0	C-1a C-2a C-3a C-4a C-5a
8	5.5-6.0	C-1b C-2b C-3b C-4b C-5b
9	10.5-11.0	C-1c C-2c C-3c C-4c C-5c

1. "a" designation indicates samples from 0.5-1.0 feet.
2. "b" designation indicates samples from 5.5-6.0 feet.
3. "c" designation indicates samples from 10.5-11.0 feet.

3.2 GROUNDWATER CHARACTERIZATION

If the initial phase of characterization reveals the presence of soil contamination that could potentially contribute to groundwater contamination, a second phase of the environmental assessment will be conducted to evaluate the nature, extent, and sources of any potential groundwater contamination beneath the property.

The groundwater characterization phase will consist of installing three groundwater monitoring wells in the shallow, unconfined water-bearing zone at the approximate locations shown on Figure 3-2. Two monitoring wells will be installed along the upgradient property boundary to evaluate the quality of groundwater flowing onto the property and the third will be installed where the impact of soil contamination on groundwater quality is potentially the greatest.

3.2.1 Monitoring Well Construction

Monitoring wells will be constructed and installed by drilling a 6 7/8-inch diameter borehole using a hollow stem auger to 13 feet below the water table. Each well will be screened over the bottom 15 feet. The screen will extend from two feet above to 13 feet below the static water level. Screening across the water table will allow for the detection of floating product and extending the screen section two feet above the water table should allow for tidal and seasonal fluctuations in the water table. Casing and screen will consist of two-inch inside diameter (I.D.), flush-threaded, Schedule 40 polyvinyl chloride (PVC). The screen will consist of factory-manufactured 0.02 inch slots. A medium to coarse sand filter pack will be placed in the annular space opposite the screen and will extend approximately two feet above the top of the screen. A two-foot-thick bentonite pellet seal will be placed above the filter pack and be allowed to hydrate. The remainder of the annular space will be filled with cement-bentonite grout. The wellheads will be completed below grade and enclosed in traffic-rated, locking,

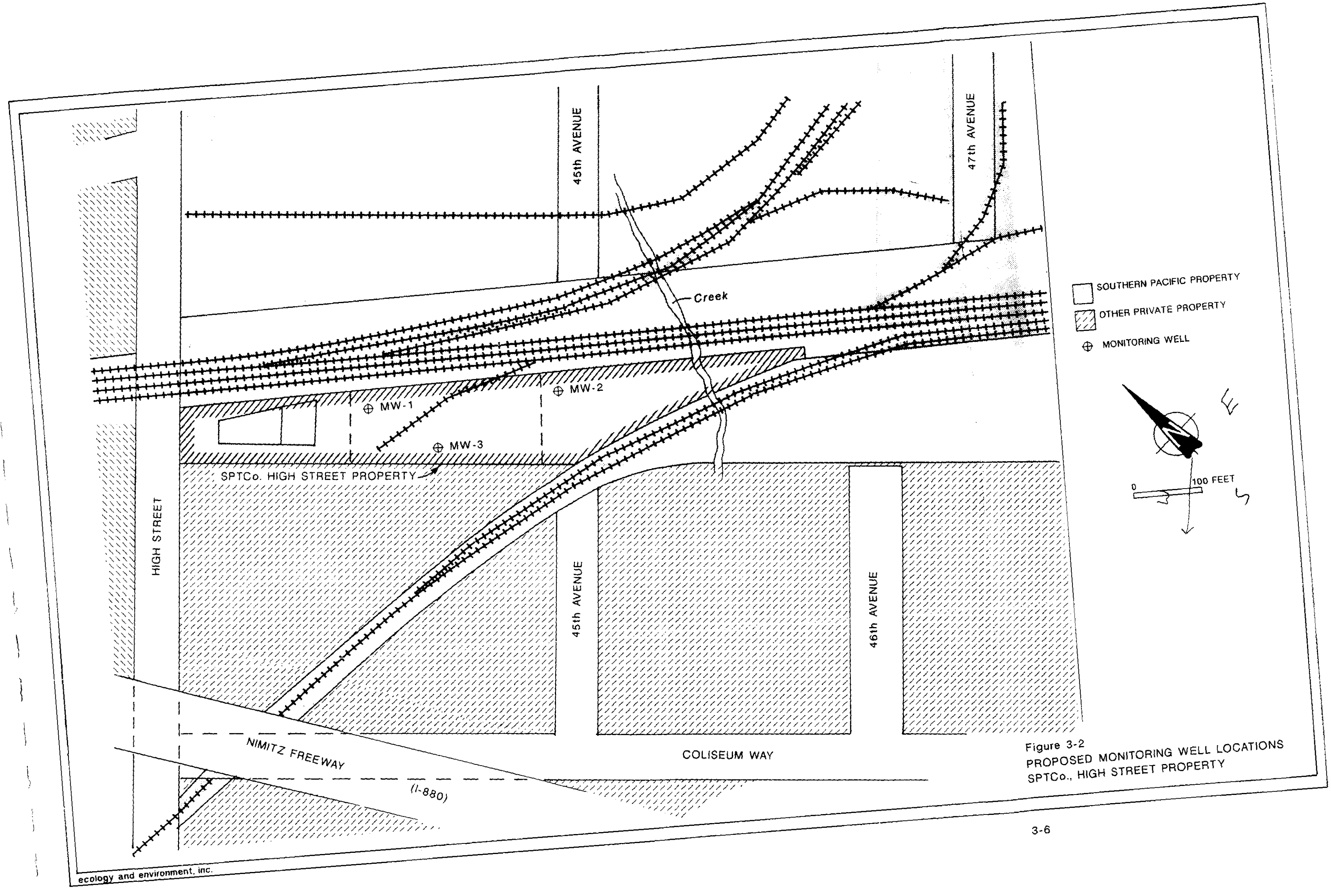

Figure 3-2
PROPOSED MONITORING WELL LOCATIONS
SPTCo., HIGH STREET PROPERTY

Christy boxes that will be flush to the ground surface. A well construction diagram is shown on Figure 3-3.

3.2.2 Well Development

Following their completion, the wells will be developed by either pumping or bailing until the discharge water is free of sand, relatively clear, and temperature, conductivity, and pH have stabilized. Adequate well development will be determined in the field by an E & E geologist. Containment and disposal of development water is discussed in Section 3.4.2.

3.2.3 Water Level Elevation Survey

Concurrent with groundwater sampling, water levels in the three on-site monitoring wells will be measured with a calibrated electric well sounder. If permission can be obtained from owners, nearby wells will be incorporated into the water level elevation survey so that the regional flow direction can be determined. Measurements will be made to the nearest 0.01 feet. The results will be used to determine the groundwater flow direction and gradient in the shallow, unconfined water-bearing zone beneath the property. To avoid inaccuracies in determining the flow direction and gradient due to tidal fluctuations, water levels will be measured in as short a time interval as possible.

3.2.4 Lithologic Logging

The E & E on-site geologist will describe core samples at five foot intervals and will also describe drill cuttings at major, obvious changes in lithology. Core samples and drill cuttings will be described in terms of color, texture (grain size and sorting), mineralogy, cementation, and wetness, and will be classified according to the Unified Soils Classification System.

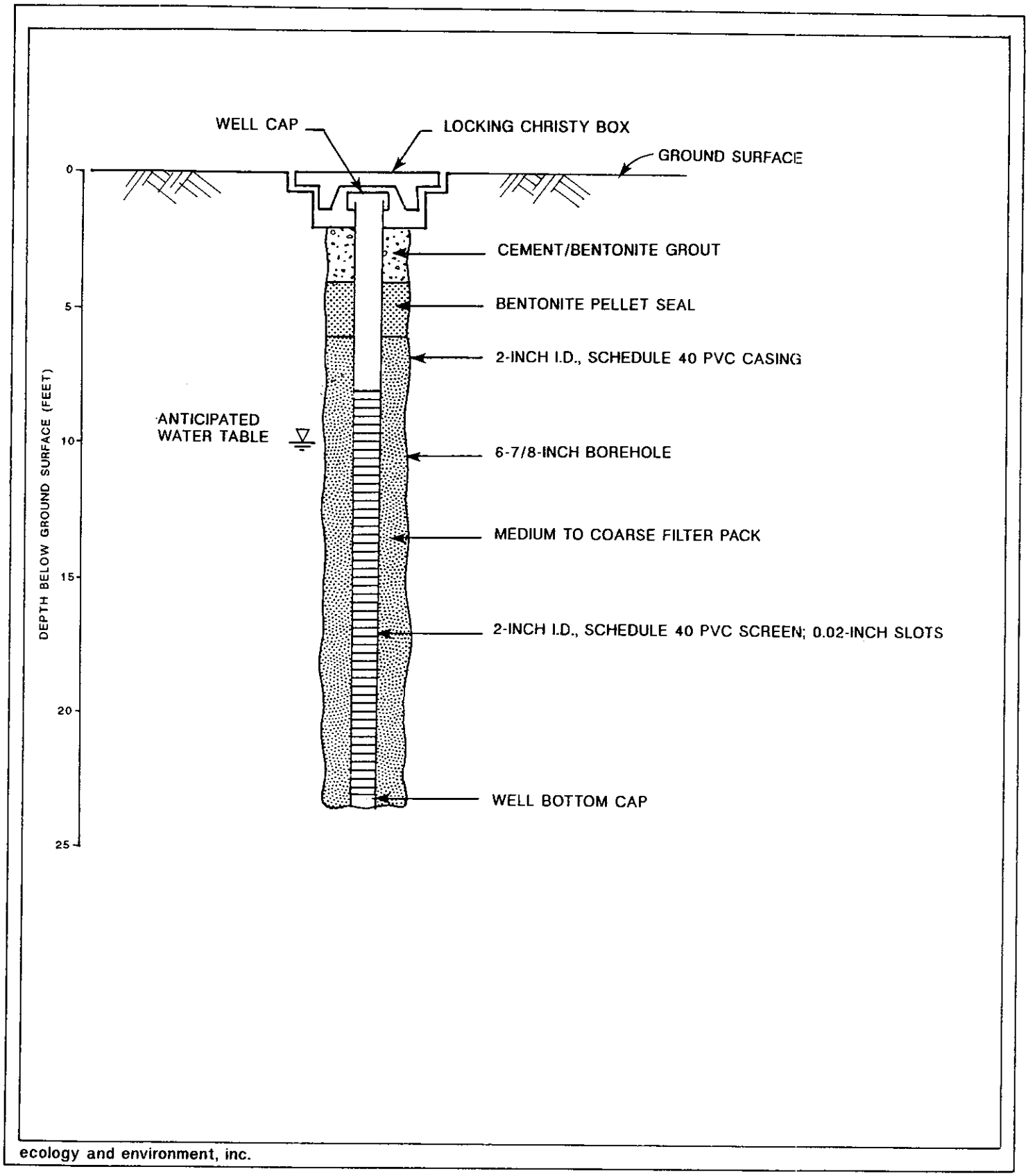

Figure 3.3 MONITORING WELL CONSTRUCTION DIAGRAM

3.2.5 Well Elevation and Location Survey

Following wellhead completion, the elevation above mean sea level and the latitudinal and logitudinal coordinates of the three on site monitoring wells and any offsite wells that will be incorporated into the water level elevation survey will be surveyed by a surveyor licensed in the State of California. Elevations will be determined to an accuracy of 0.01 feet.

3.3 GROUNDWATER SAMPLING

3.3.1 Sampling Methodology

E & E will collect groundwater samples from the three on-site monitoring wells following completion and development. Prior to collecting a sample, water will be evacuated from the well using a bladder pump if a continuous flow rate can be sustained, or the well will be evacuated using a Teflon bailer. During evacuation, the parameters pH, electrical conductivity, and temperature will be measured and the turbidity will be qualitatively assessed at five gallon intervals to assure that the water quality has stabilized prior to sampling. Purging will continue until three to five wetted casing volumes have been evacuated or until the water quality parameters listed above have stabilized. If a discharge from a well cannot be sustained (i.e, if the well pumps dry), it will be allowed to recover to within 90 percent of the pre-evacuation water level before a groundwater sample is collected.

Groundwater samples will be collected in labeled and pre-cleaned bottles of appropriate size and containing the appropriate preservative, if required. The sample descriptions, volume requirements, bottle sizes, bottle types and number, and any preservatives necessary are described in Section 4.6.1.

One replicate and one field blank will be collected during groundwater sampling. Field blanks will be prepared using certified organic-free water for organic analyses and deionized water for inorganic analyses. Replicates will be collected immediately following initial sample collection in a manner identical to the initial sample. The blank and replicate will be packaged, labeled, and sealed in the same manner as other water samples.

3.3.2 Groundwater Analytes

Groundwater samples will be analyzed for PCBs, TOG, TPH, purgeable organic compounds, and the heavy metals listed in Title 22 CCR. These parameters were chosen based on the constituents that were detected in near surface soils during the sampling conducted by PCC in July, 1988; and will provide data to assess whether potential soil contamination at the property is adversely affecting groundwater quality beneath the site. The water quality parameters of pH, temperature, and electrical conductivity will be measured for each well sampled during evacuation as described above and immediately prior to obtaining a sample.

3.4 MISCELLANEOUS ACTIVITIES

3.4.1 Decontamination

Adequate decontamination procedures will ensure that samples collected are representative of actual environmental conditions at the sampling locations, and that cross-contamination from one sample to another has not occurred. E & E will observe the decontamination procedures described below.

All drilling equipment that could come into contact with subsurface materials and/or groundwater will be thoroughly steam-cleaned prior to its use at each sampling location. This includes auger flights, drill bits, well development pipe, and any pumps used during the development of monitoring wells. Steam cleaning will be performed by the driller. E & E's field personnel will decontaminate the split-tube sampler used

for obtaining soil samples between each sample, and any non-dedicated equipment that might come in contact with sampled groundwater. The following decontamination procedure will be followed:

- Wash with a phosphate-free detergent such as Alconox;
- Rinse with tap water;
- Rinse with hexane; and
- Rinse with deionized water.

3.4.2 Field-Generated Materials Handling

Materials generated in the field during site characterization activities include cuttings from soil borings and well drilling, and groundwater from well development and sampling.

Drill cuttings from soil borings will be temporarily stored at each on site drill location in 55 gallon drums pending the results of the soil analyses. The ultimate disposal of the drill cuttings will be the responsibility of SPTCo. Drums will be sealed and labeled as follows: "Soil Cuttings: Analysis Pending".

Extracted groundwater during development and sampling will be temporarily contained in drums or other containers on-site pending receipt of analytical results. The analytical results will be used to determine the appropriate disposal method. SPTCo. will be responsible for the ultimate disposal of extracted groundwater. These containers will also be sealed and labeled.

4. QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC)

4.1 QA/QC OBJECTIVES

The overall objectives of the field sampling program include production of reliable data that will support development of a remedial action plan. Field and laboratory QA/QC procedures necessary to assure the generation of reliable data are described in this section.

Field sampling personnel are the first link the analytical chain and their importance in ensuring the overall quality control of the data cannot be overemphasized. Field tasks important to the QA/QC process include the following:

- Ensuring that samples are representative of site conditions and are free of field-induced contaminants;
- Initiation of chain-of-custody procedures;
- Preservation and shipping of samples so that they arrive at the laboratory unchanged;
- Documenting all field measurements (e.g., pH, temperature, conductivity, etc.); and
- Collecting additional samples as necessary to fulfill QC requirements.

These activities, in addition to laboratory QA/QC procedures, are described in more detail below.

4.2 FIELD QA/QC SAMPLES

Additional samples taken in the field are used to evaluate both sampling and analytical methods. For the SPTCo. High Street characterization, the two basic categories of QA/QC samples to be collected are blanks and replicates. The sampling location adjacent to High Street will serve as a background location. QC samples will be labeled, preserved, transported, and secured in exactly the same manner as all other samples.

4.2.1 Blank Samples

Blank samples are used to check the cleanliness of field handling methods during collection of water samples. E & E will prepare field blanks consisting of either certified, organic-free or deionized water, as appropriate, that will be bottled and labeled in a manner consistent with other water samples, as a check of field procedures and sample jar preparation.

The field blanks prepared by E & E will also serve as trip blanks to document that transport of samples from the field does not result in sample contamination. Sample bottles to be used are certified, pre-cleaned bottles. Preparation of blank water samples includes handling and labeling all jars used in a manner that is identical to actual samples. Blank samples will be prepared for each type of sample container specified, and each will be filled with either organic free or reagent-grade deionized water as is appropriate. The laboratory will not be informed which samples are blank, and all blank samples will be documented in field logbooks.

Because field conditions cannot be controlled as rigorously as they are in the laboratory, positive field blank results will not necessarily be subtracted from sample results. It is not possible to set concrete rules for treatment of field blank results which show a degree of contamination. This is the responsibility of the data reviewers and the laboratory manager, and they will decide to qualify or reject data, taking into consideration all factors in the sampling and analysis.

4.2.2 Replicate Samples

In this QA procedure, identical sample pairs (collected in the same place and at the same time), are placed in identical containers. For the purpose of data reporting, one is arbitrarily designated the sample, and the other is designated as a replicate sample. Both sets of results are reported (not averaged) to give an indication of the precision of sampling and analytical methods.

The laboratory's precision will be assessed without the laboratory's knowledge by labeling one of the replicates with false identifying information. Data quality will be evaluated on the basis of the replicate results. One set of replicate samples will be prepared per day for the duration of soil and groundwater sampling activities.

4.3 FIELD INSTRUMENTATION QA/QC

Field analysis is required for those parameters in a sample which are not easily preserved for later laboratory measurement or are needed for real-time decision-making in the field. Parameters to be measured inthe field include pH, specific conductivity, and temperature. In addition, sophisticated field measurements will be made for volatile organics by HNu photoinization equipment for health and safety purposes. QC of such field data involves three components:

- Regular maintenance (and cleaning) of field measurement equipment, according to manufacturer's specifications;
- Regular calibration of field equipment, according to manufacturer's specifications; and
- Duplicate analysis of approximately 10% of samples in the field.

Field measurements, as well as calibration and maintenance records, are entered in the site logbooks. They must correspond to the field identification number at the site or referenced on sample bottles transported to the laboratory. Summary entries that organize and/or clarify the data will be tabulated as soon as possible at the end of each day's activities, also in the site logbook.

4.4 SAMPLE PACKAGING AND SHIPMENT

Samples will be packaged carefully to avoid breakage or contamination, and will be delivered to the laboratory under proper chain of custody at proper storage temperatures. The following sample packaging requirements will be followed:

- Sample bottle lids will not be mixed. All sample lids will stay with the original containers, and have custody seals affixed to them.

- All samples collected in glass jars will be wrapped in bubble pack and individually sealed in plastic bags. This will ensure that no cross-contamination due to leakage or spillage occurs.

- Samples will be secured in coolers to maintain custody, temperature control, and prevent breakage during transportation to the laboratory.

- The original chain-of-custody form and one copy will be placed in a plastic bag and taped to the inside of the cooler lid.

- Ice will be used of keep samples at a constant temperature during transport to the laboratory.

4.5 SAMPLE DOCUMENTATION

As samples are collected from either the monitoring wells or soil borings, sample labels will be affixed to the bottles or brass liners. The information on the label will be written with a waterproof, indelible marker and will also be noted in the field logbook. Any perculiarities found in the sample will be noted in the logbook.

4.6 SAMPLE CONTROL/CHAIN-OF-CUSTODY

4.6.1 Standard Operating Procedures

All sample containers will be pre-cleaned by the supplier. Sample volume requirements, along with a summary of analytical parameters, are provided in Table 4-1.

All field personnel will comply with the methods described in this plan of correction report for soil and groundwater sample collection. Prior to sampling, field personnel will ensure that all sample containers are in his/her physical possession or in his/her view at all times, or ensure that the containers are stored in a locked place at all times, so as to maintain proper custody. All sample gathering activities will be recorded in the site logbook; all sample transfers will be documented in

Table 4-1

Summary of Analytical Methods

Matrix	Test Parameter	Method Number	Container Type	Preservative
Soil	PCBs	EPA-8080	Brass sleeve	Ice
	Purgeable Organics	EPA-8020	Brass sleeve	Ice
	Total Oil and Grease	EPA-413.2	Brase sleeve	Ice
	Metals	EPA-7000	Brass sleeve	HNO_3 <2, Ice
	Total Petroleum Hydrocarbons	EPA-418.1	Brass sleeve	HCl <2
Water	PCBs	EPA-608	1 liter amber glass	Ice
	Purgeable Organics	EPA-624	40 ml VOA Vial	Ice
	Total Oil and Grease	EPA-413.2	1 liter amber glass	HCl <2, Ice
	Metals	EPA-200.7	1 liter poly bottle	HNO_3 <2, Ice
	Total Petroleum Hydrocarbons	EPA-418.1	1 liter poly bottle	HCl <2

the chain-of-custody record; all samples will be identified with E & E labels and the lid of each sample bottle secured with a custody seal. All information will be recorded in waterproof ink. E & E field personnel are personally responsible for sample collection and the care and custody of collected samples until the samples are transferred or properly dispatched to the laboratory.

4.6.2 Chain-of-Custody

The custody record must be fully completed by the field technician who has been designated by the project manager as being responsible for sample shipment to the designated laboratory. An example of E & E's chain-of-custody form is illustrated in Figure 4-1. This is a four-page, color-coded carbonless form: The first page is white; the second page canary; the third page, pink; and the fourth page, yellow.

The information specified on the chain-of-custody record will contain the same level of detail found in the site logbook, with the exception that the on-site measurement data need not be recorded. The custody record will include, among other things, the following information: name of person collecting the samples; date samples were collected; type of sampling conducted (composite/grab); location of sampling station; number and type of containers used; and signature of the E & E person relinquishing samples, with the date and time of transfer noted. The relinquishing individual will also indicate all the specific shipping data (airway bill number, office, time, and date) on the custody record. The original and canary copy of the custody records, together with the airway bill or delivery noted together constitute a complete record and will be incorporated into the permanent job file. In addition, if samples are known to require rapid turnaround in the laboratory because of project time constraints or analytical concerns (e.g., extraction time or sample retention period limitations, etc.) the person completing the chain-of-custody record should note these constraints in the remarks section of the custody record. The white and canary copies accompany the shipment and the pink and yellow copies become part of the project file.

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CHAIN-OF-CUSTODY RECORD

Page ____ of ____.

Project No.:	Project Name:	Project Manager:
Samplers: (Signatures)		Field Team Leader:

STATION NUMBER	DATE	TIME	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE TYPE AIR	SAMPLE INFORMATION EXPECTED COMPOUNDS (Concentration)*	STATION LOCATION	NUMBER OF CONTAINERS	REMARKS

Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Relinquished By (Signature)	Date/Time	Received By: (Signature)	Ship Via:	
Relinquished By: (Signature)	Date/Time:	Received By (Signature)	Relinquished By (Signature)	Date/Time	Received By: (Signature)		
Relinquished By: (Signature)	Date/Time:	Received For Laboratory By (Signature)	Relinquished By (Signature)	Date/Time	Received For Laboratory By: (Signature)	BL/Airbill Number:	Date:

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files
*See CONCENTRATION RANGE on back of form.

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Figure 4-1 CHAIN-OF-CUSTODY FORM

The original and canary copy of the custody record are placed in a plastic bag and taped to the underside of the shipping box lid prior to closure. The container is then tightly bound with filament tape. Finally, at least two custody seals are signed by the individual relinquishing custody and affixed in such a way that the box cannot be opened without breaking them.

At the laboratory, the sample custodian will open the package, retrieve the original and canary copy records, and complete the "Received for Laboratory by" box by affixing his/her signature. The custodian will also fill in the "Method of Shipment" box with the shipper's name (e.g., ATI courier or Federal Express) and airway bill number.

4.6.3 Custody Seals

Custody seals are preprinted adhesive-backed seals with security slots designed to break if they are disturbed. Individual sample bottles are sealed over the cap with a custody seal by the sampling technician. Sample shipping containers (coolers) are sealed in as many places as necessary to ensure security. Seals are signed and dated before used. On receipt at the laboratory, the custodian will check and certify that seals on boxes and bottles are intact.

4.6.4 Field Logbooks

The site logbook(s) will be maintained by designated E & E field personnel. All site logbooks must be bound, contain numbered pages, and be waterproof. The following documentation is to be recorded in the site logbooks: sampling locations, station numbers, dates, times, sampler's name, designation of the sample as a grab or composite, notation of the type of sample (e.g., groundwater, soil boring, etc.), preservatives used, on-site measurement data, and other observations or remarks. Each series of logbook entries for a particular sampling effort must be initialed by the person recording the information and, where appropriate, summary entries that organize and/or clarify data presented in the logbook are to be prepared by the person recording the information.

After reviewing the entries, the field team leader must sign each page of the site logbook on the top and the bottom.

As with all data logbooks, no pages will be removed for any reason. If corrections are necessary, these must be made by drawing a single line through the original entry (in such a manner that the original entry can still be read) and writing the corrected entry alongside. The correction must be initialed and dated. Most corrected errors will require a footnote explaining the correction.

The site logbook is the prime repository of information of actual site conditions and as such is an important link in the analytical chain. Any details which may be relevant to the analysis or integrity of samples must be recorded. Preliminary sample descriptions are helpful. Any unusual circumstances should be noted (e.g., heavy rain, or difficulty in pH meter calibration). At the completion of the sampling exercise, the logbook must be retained by and/or returned to the project manager and becomes part of the permanent project file. To the extent that any information contained in the logbook is relevant to laboratory sample analysis, such data will be made available to the laboratory performing the analyses.

4.7 LABORATORY QA/QC

Execution of a strict QA/QC program is an essential ingredient in high-quality analytical results. By using accredited laboratory techniques and analytical procedures, estimates of the experimental values can be nearly identical to the actual value of the environmental sample. The experimental value is monitored for its precision and accuracy by performing QC tests designed to measure the amount of random and systematic errors and to signal when correction of these errors is needed.

The QA/QC program describes methods for performing QC tests. These methods involve analyzing method blanks, calibration standards, check standards (both independent and EPA-certified standards), duplicates,

replicates, and sample spikes. Internal QC also requires adherence to written methods, procedural documentation and record keeping, and the observance of good laboratory practice.

5. MOBILIZATION PLAN AND LOGISTICS

5.1 SUBCONTRACTOR PROCUREMENT

Specialized services will be needed to perform the following activities during the site characterization study:

- o Soil boring and sampling;
- o Monitoring well installation;
- o Well elevation and location survey; and
- o Sample analysis.

E & E has identified Western Strata Exploration (WESTEX) as the drilling subcontractor to perform all soil boring, and monitoring well installation activities.

E & E will subcontract with a local surveyor who is licensed in the State of California to perform the well elevation and location survey following installation of the three monitoring wells. Selected existing offsite wells may also be included in the monitoring well elevation survey; these additional wells will also be surveyed.

Laboratory analytical services will be provided by E & E's Analytical Services Center (ASC) in Lancaster, New York.

5.2 DRILLING PERMITS

E & E will obtain the necessary drilling permits prior to the installation of monitoring wells. Well drilling permits will be obtained from, and filed with, the Alameda County Health Care Services Agency (HCHCS).

As required under conditions of the permit, E & E will notify HCHS 24 hours in advance of any grouting of cementing of annular spaces between the well casing and the borehole so that HCHCS has the opportunity to inspect these activities.

Following well installation, E & E will file California Department of Health Services Water Well Drillers Reports with HCHCS.

6. DATA EVALUATION AND REPORTING

6.1 DATA ACQUISITION AND ANALYSIS

Information generated during this site characterization will include data accumulated during soil boring, monitoring well installation soil and groundwater sampling, and water level elevation survey activities. The following data elements will be compiled during these activities.

- o Lithologic logs for soil borings;
- o Construction logs for monitoring wells;
- o Water level measurements;
- o Field water quality results;
- o Laboratory analytical results (soil and water); and
- o Quality control/quality assurance measurements.

6.2 DATA VALIDATION AND EVALUATION

Analytical and geological data will be reviewed for accuracy and completeness. The laboratory analytical results will include routine QC data which will allow E & E to assess which results are valid and which results are questionable due to analytical parameters beyond QC criteria limits. The geological data will be reviewed for consistency, proper classifications and identifications, and accurate calculations.

6.3 SITE CHARACTERIZATION REPORT

An environmental assessment report will be prepared following evaluation of analytical data, and will include a summary of the scope of work, a discussion of and reasons for any divergences from the work plan, and results of the environmental assessment investigation. A sample format for the report is presented in Table 6-1.

Table 6-1

Environmental Assessment Report Format

EXECUTIVE SUMMARY

1. INTRODUCTION

    1.1 OBJECTIVES OF THE INVESTIGATION
    1.2 SITE HISTORY AND BACKGROUND
    1.3 ENVIRONMENTAL SETTING
    1.4 OVERVIEW OF REPORT

2. SUMMARY OF SCOPE OF WORK
    2.1 WORK PLAN SUMMARY
    2.2 AREAS OF DIVERGENCE FROM WORK PLAN

3. ENVIRONMENTAL ASSESSMENT RESULTS
    3.1 SOILS
    3.2 GROUNDWATER

4. CONCLUSIONS AND RECOMMENDATIONS

    REFERENCES

    APPENDICES

7. HEALTH AND SAFETY PLAN

E & E's health and safety plan addressing field activities described in this plan of correction report is presented in Appendix A. This plan is designed to protect and monitor the health and safety of E & E personnel, as well as the community at large, during all field activities at the SPTCo. High Street property. These specifications also represent minimum standards for subcontractors in developing their own site-specific health and safety plans. Prior to initiating field activities, a health and safety meeting will be held with drilling subcontractor personnel to review the provisions of E & E and subcontractor plans. Daily morning "tailgate" meetings will also be held to address health and safety concerns which may arise and to provide refresher training as needed.

All E & E and subcontractor personnel have completed a 40 hour training course which meets the requirements of the Occupational Safety and Health Administration (OSHA), as outlined in 29 CFR Part 1910.120. In addition, all field personnel have passed yearly comprehensive physical examinations and are fully certified for hazardous waste site work.

APPENDIX A

SITE SAFETY PLAN

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SITE SAFETY PLAN

Version 988

A. GENERAL INFORMATION

Project Title: Southern Pacific, High Street Environmental Assessment

Project No.: SP-8000

TDD/Pan No.: Not Applicable

Project Manager: Colin Moy

Project Dir.: Mark Bradford

Location(s): 744 and 758 High Street, Oakland, CA

Prepared by: Bob Enkeboll

Date Prepared: April 24, 1989

Approval by: _____

Date Approved: _____

Site Safety Officer Review: _____

Date Reviewed: _____

Scope/Objective of Work: To characterize soil and/or groundwater contamination.

Proposed Date of Field Activities: Unknown - pending agency approval of work plan

Background Info: Complete: [x] Preliminary (No analytical data available) [ ]

Documentation/Summary:

Overall Chemical Hazard:	Serious [ ]	Moderate [ ]
	Low [x]	Unknown [ ]
Overall Physical Hazard	Serious [ ]	Moderate [ ]
	Low [x]	Unknown [ ]

B. SITE/WASTE CHARACTERISTICS

Waste Type(s):

Liquid [x]	Solid [x]	Sludge [ ]	Gas/Vapor [ ]

Characteristic(s):

Flammable/ Ignitable [ ]	Volatile [x]	Corrosive [ ]	Acutely Toxic [ ]
Explosive [ ]	Reactive [ ]	Carcinogen [x]	Radioactive* [ ]

Other: _____

Physical Hazards:

Overhead [x]	Confined* Space [ ]	Below Grade [ ]	Trip/Fall [x]
Puncture [ ]	Burn [ ]	Cut [ ]	Splash [ ]
Noise [x]	Other: _____		

*Requires completion of additional form and special approval from the Corporate Health/Safety group. Contact RSC or HQ.

a/be/sp-hs/ssp

Site History/Description and Unusual Features (see Sampling Plan for detailed description): Surface soil sampling detected PCBs to 240 ppm, total oil and grease to 5,000 ppm, and traces of benzene and other volatile hydrocarbons.

Locations of Chemicals/Wastes: Contamination known to occur in near-surface soils.

Estimated Volume of Chemicals/Wastes: Unknown

Site Currently in Operation Yes: [x] No: [ ]

C. HAZARD EVALUATION

List Hazards by Task (i.e., drum sampling, drilling, etc.) and number them. (Task numbers are cross-referenced in Section D)

Physical Hazard Evaluation:

(1) Soil Boring/Sampling - Noise; tripping; falling; drilling equipment

(2) Groundwater Well Installation/Sampling - Noise; tripping; falling; drilling equipment

Chemical Hazard Evaluation:

Primary

Compound	PEL/TWA	Route of Exposure	Acute Symptoms	Odor Threshold	Odor Description
PCBs	0.5 mg/m^3	Skin, Inhl.	Skin Disorder	>TLV	Hydrocarbon
total oil and greese	None	Skin	None	Varies	Petroleum
benzene	1 ppm	Inhl.	Irrit. Nose/Eyes; headache	5 ppm	Aromatic
Aromatic hydro	50-100 ppm	Inhl.	Irrit.; head.; nausea	Varies	Aromatic

Note: Complete and attach a Hazard Evaluation Sheet for major known contaminant.

D. SITE SAFETY WORK PLAN

Site Control: Attach map, use back of this page, or sketch of site showing hot zone, contamination reduction, zone, etc.

Perimeter identified? [x] Site secured? [x]

Work Areas Designated? [x] Zone(s) of Contamination Identified? [ ]

Personnel Protection (TLD badges required for all field personnel):

Anticipated Level of Protection (Cross-reference task numbers to Section C):

	A	B	C	D
Task 1				x
Task 2				x
Task 3				
Task 4				

(Expand if necessary)

Modifications: monitoring breathing zone with HNu (10.2 probe): upgrade to Level C if organic vapors >5 ppm or if visable dust is produced during drilling.

Action Levels for Evacuation of Work Zone Pending Reassessment of Conditions:

- Level D: O_2 <19.5% or >25%, explosive atmosphere >10% LEL, organic vapors above background levels, particulates >_____ mg/m^3, other _____.
- Level C: O_2 <19.5% or >25%, explosive atmosphere >25% LEL_3(California-20%), unknown organic vapor (in breathing zone) >5 ppm, particulates >_____ mg/m^3, other _____.
- Level B: O_2 <19.5% or >25%, explosive atmosphere >25% LEL (California-20%), unknown organic vapors (in breathing zone) >500 ppm, particulates >_____ mg/m^3, other _____.
- Level A: O_2 <19.5% or >25%, explosive atmosphere >25% LEL (California-20%), unknown organic vapors >500 ppm, particulates >_____ mg/m^3, other _____.

Air Monitoring (daily calibration unless otherwise noted):

Contaminant of Interest	Type of Sample (area, personal)	Monitoring Equipment	Frequency of Sampling
Benzene/Aromatics	Both	HNu	15 min. during drilling
PCBs (In Total Dust)	N.A.	Visual	Constant

(Expand if necessary)

Decontamination Solutions and Procedures for Equipment, Sampling Gear, etc.:

Wash with phosphate free detergent such as alconox

rinse with tap water

rinse with deionized water

rinse with hexane.

Personnel Decon Protocol: dispose of tyvek and surgical gloves; wash nitrile gloves and wash neoprene boots with phosphate free detergent and rinse with tap water.

Decon Solution Monitoring Procedures, if Applicable: N/A

Special Site Equipment, Facilities, or Procedures (Sanitary Facilities and Lighting Must Meet 29 CFR 1910.120):

Air monitoring of breathing zone and borehole with HNu.

Site Entry Procedures and Special Considerations:

Work Limitations (time of day, weather conditions, etc.) and Heat/Cold Stress Requirements:

No drilling during threat of lightning.

General Spill Control, if applicable:

Investigation-Derived Material Disposal (i.e., expendables, decon waste, cuttings):

Drum cuttings, contain development and evacuation water - SP has responsibility for ultimate disposal. Drum tyvek, gloves, and other non-reusable supplies.

Sample Handling Procedures Including Protective Wear:

Handle samples with surgical gloves.

Team Member*	Responsibility
Bob Enkeboll	Team Leader
Colin Moy	Site Safety Officer

*All entries into exclusion zone require Buddy System use. All E & E field staff participate in medical monitoring program and have completed applicable training per 29 CFR 1910.120. Respiratory protection program meets requirements of 29 CFR 1910.134, and ANSI Z88.2 (1980).

E. EMERGENCY INFORMATION

(Use supplemental sheets, if necessary)

LOCAL RESOURCES

(Obtain a local telephone book from your hotel, if possible)

Ambulance 911

Hospital Emergency Room 532-6300

Poison Control Center N/A

Police (include local, county sheriff, state) 911

Fire Department 911

Airport Oakland International Airport 577-4000

Agency Contact (EPA, State, Local USCG, etc.) N/A

Local Laboratory

Fed. Express 8455 Pardee, Oakland, CA 568-2380

Client/EPA Contact John Moe 541-2557

Site Contact John Moe 541-2557

SITE RESOURCES

Site Emergency Evacuation Alarm Method Verbal

Water Supply Source On site

Telephone Location, Number

Cellular Phone, if available N/A

Radio

Other

EMERGENCY CONTACTS

1. Dr. Raymond Harbison (Univ. of Florida) ..... (501) 221-0465 or (904) 462-3277, 3281
   Alachua, Florida (501) 370-8263 (24 hours)

2. Ecology and Environment, Inc., Safety Director
   Paul Jonmaire ..... (716) 684-8060 (office)
   (716) 655-1260 (home)

3. Regional Office Contact
   Kim Williams-Bean ..... (415)339-8460 (home)
   (415)777-2811 (office)

4. FITOM, TATOM, or Office Manager
   TAT: Tom Chambers ..... (415) 282-0444 (home)
   CORP: Jim Neeley ..... (415) 644-1587 (home)

MEDTOX HOTLINE

1. Twenty-four hour answering service: (501) 370-8263

   What to report:

   - State: "this is an emergency."
   - Your name, region, and site.
   - Telephone number to reach you.
   - Your location.
   - Name of person injured or exposed.
   - Nature of emergency.
   - Action taken.

2. A toxicologist, (Drs. Raymond Harbison or associate) will contact you. Repeat the information given to the answering service.

3. If a toxicologist does not return your call within 15 minutes, call the following persons in order until contact is made:

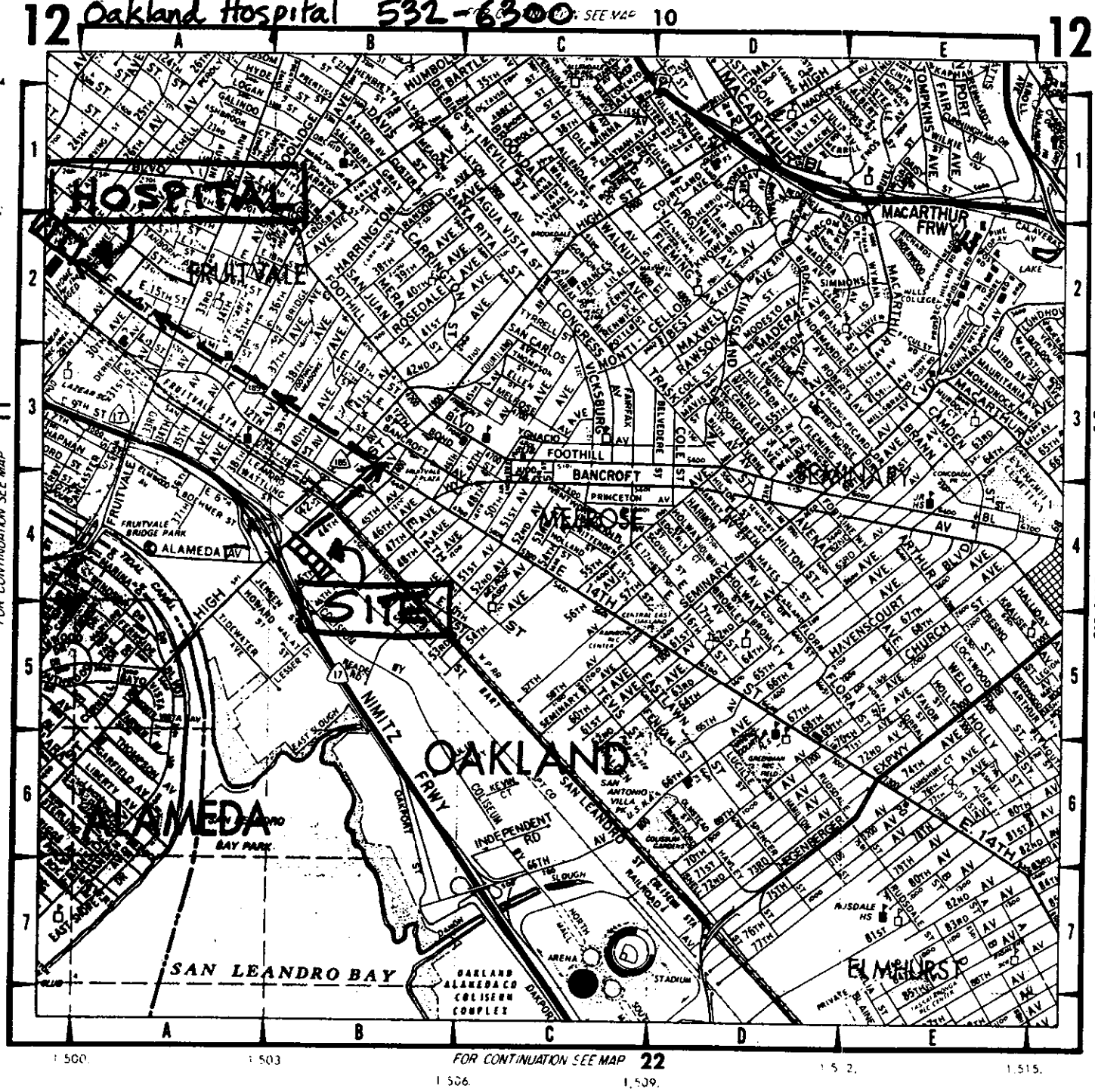
   a. **24 hour hotline - (716) 684-8940**
   b. Corporate Safety Director - Paul Jonmaire - home # (716) 655-1260
   c. Assistant Corp. Safety Officer - Steven Sherman - home # (716) 688-0084

EMERGENCY ROUTES

(NOTE: Field Team must Know Route(s) Prior to Start of Work)

Directions to hospital (include map) High Street to east (away from bay); turn left on E. 14th St., Hospital is on right - address is 2648 E 14th St. (approximately 1 mile north of High Street).

Emergency Egress Routes to Get Off-Site Site exit is via High Street - rest of the perimeter is fenced.


12 Oakland Hospital 532-6300
FOR CONTINUATION SEE MAP 10
12
A
B
C
D
E
HOSPITAL
SITE
FRUITVALE
MACARTHUR FRWY
MACARTHUR BLVD
FOOTHILL
BANCROFT
MELROSE
ALAMEDA AV
FRUITVALE BRIDGE PARK
HIGH ST
NIMITZ FRWY
OAKLAND
ALAMEDA
BAY FARM
SAN LEANDRO BAY
COLISEUM
INDEPENDENT RD
OAKLAND ALAMEDA CO COLISEUM COMPLEX
ARENA
STADIUM
SAN LEANDRO
HAVENSCOURT
EXPWY
ELMHURST
FOR CONTINUATION SEE MAP 11
FOR CONTINUATION SEE MAP 15
FOR CONTINUATION SEE MAP 22
1500
1503
1506
1509
1512
1515

F. EQUIPMENT CHECKLIST

PROTECTIVE GEAR

Level A	No.
SCBA	
SPARE AIR TANKS	
ENCAPSULATING SUIT (Type _____)	
SURGICAL GLOVES	
NEOPRENE SAFETY BOOTS	
BOOTIES	
GLOVES (Type _____)	
OUTER WORK GLOVES	
HARD HAT	
CASCADE SYSTEM	
5-MINUTE ESCAPE COOLING VEST	

Level B	No.
SCBA	
SPARE AIR TANKS	
PROTECTIVE COVERALL (Type _____)	
RAIN SUIT	
BUTYL APRON	
SURGICAL GLOVES	
GLOVES (Type _____)	
OUTER WORK GLOVES	
NEOPRENE SAFETY BOOTS	
BOOTIES	
HARD HAT WITH FACE SHIELD	
CASCADE SYSTEM	
MANIFOLD SYSTEM	

Level C	
ULTRA-TWIN RESPIRATOR	
POWER AIR PURIFYING RESPIRATOR	
CARTRIDGES (Type _____)	
5-MINUTE ESCAPE MASK	
PROTECTIVE COVERALL (Type _____)	
RAIN SUIT	
BUTYL APRON	
SURGICAL GLOVES	
GLOVES (Type _____)	
OUTER WORK GLOVES	
NEOPRENE SAFETY BOOTS	
HARD HAT WITH FACE SHIELD	
BOOTIES	
HARDHAT	

Level D	
ULTRA-TWIN RESPIRATOR (Available)	2
CARTRIDGES (Type MC-H)	12
5-MINUTE ESCAPE MASK (Available)	
PROTECTIVE COVERALL (Type _____)	
RAIN SUIT	
NEOPRENE SAFETY BOOTS	2
BOOTIES	
WORK GLOVES	6
HARD HAT WITH FACE SHIELD	2
SAFETY GLASSES	2

INSTRUMENTATION	No.
OVA	
THERMAL DESORBER	
O2/EXPLOSIMETER W/CAL. KIT	
PHOTOVAC TIP	
HNu (Probe 10.2)	1
MAGNETOMETER	
PIPE LOCATOR	
WEATHER STATION	
DRAEGER PUMP, TUBES	
BRUNTON COMPASS	
MONITOX CYANIDE	
HEAT STRESS MONITOR	
NOISE EQUIPMENT	
PERSONAL SAMPLING PUMPS	
RADIATION EQUIPMENT	
DOCUMENTATION FORMS	
PORTABLE RATEMETER	
SCALER/RATEMETER	
NaI Probe	
ZnS Probe	
GM Pancake Probe	
GM Side Window Probe	
MICRO R METER	
ION CHAMBER	
ALERT DOSIMETER	
POCKET DOSIMETER	
FIRST AID EQUIPMENT	
FIRST AID KIT	x
OXYGEN ADMINISTRATOR	
STRETCHER	
PORTABLE EYE WASH	
BLOOD PRESSURE MONITOR	
FIRE EXTINGUISHER	

DECON EQUIPMENT	No.
WASH TUBS	2
BUCKETS	4
SCRUB BRUSHES	2
PRESSURIZED SPRAYER	
DETERGENT (Type alconox)	1
SOLVENT (Type hexane)	1 gal
PLASTIC SHEETING	1
TARPS AND POLES	
TRASH BAGS	6
TRASH CANS	
MASKING TAPE	
DUCT TAPE	1 roll
PAPER TOWELS	2 rolls
FACE MASK	
FACE MASK SANITIZER	
FOLDING CHAIRS	
STEP LADDERS	
DISTILLED WATER	5 gal
SAMPLING EQUIPMENT	
8 OZ. BOTTLES	
HALF-GALLON BOTTLES	x
VOA BOTTLES	x
STRING	x
HAND BAILERS	x
THIEVING RODS WITH BULBS	
SPOONS	
KNIVES	
FILTER PAPER	
PERSONAL SAMPLING PUMP SUPPLIES	

VAN EQUIPMENT	No.
TOOL KIT	
HYDRAULIC JACK	
LUG WRENCH	
TOW CHAIN	
VAN CHECK OUT	
Gas	
Oil	
Antifreeze	
Battery	
Windshield Wash	
Tire Pressure	
MISCELLANEOUS	
PITCHER PUMP	
SURVEYOR'S TAPE	
100 FIBERGLASS TAPE	x
300 NYLON ROPE	
NYLON STRING	
SURVEYING FLAGS	x
FILM	x
WHEEL BARROW	
BUNG WRENCH	
SOIL AUGER	
PICK	
SHOVEL	
CATALYTIC HEATER	
PROPANE GAS	
BANNER TAPE	
SURVEYING METER STICK	
CHAINING PINS & RING	
TABLES	
WEATHER RADIO	
BINOCULARS	
MAGAPHONE	

MISCELLANEOUS (Cont.)	No.
SHIPPING EQUIPMENT	
COOLERS	x
PAINT CANS WITH LIDS, 7 CLIPS EACH	
VERMICULITE	
SHIPPING LABELS	x
DOT LABELS: "DANGER"	
"UP"	
"INSIDE CONTAINER COMPLIES ..."	
"HAZARD GROUP"	
STRAPPING TAPE	x
BOTTLE LABELS	x
BAGGIES	x
CUSTODY SEALS	x
CHAIN-OF-CUSTODY FORMS	x
FEDERAL EXPRESS FORMS	x
CLEAR PACKING TAPE	
BUBBLE PACK	x

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ON-SITE SAFETY MEETING

Project _____ TDD/Pan _____

Date _____ Time _____ Job No. _____

Address _____

Specific Location _____

Type of Work _____

_____

SAFETY TOPICS PRESENTED

Protective Clothing/Equipment _____

_____

Chemical Hazards _____

_____

Radiation Hazards _____

_____

Physical Hazards _____

_____

Emergency Procedures _____

_____

Hospital/Clinic _____ Telephone _____

Hospital Address _____

Special Equipment _____

Other _____

Checklist

1. Emergency information reviewed? _____ and made familiar to all team members? _____
2. Route to nearest hospital driven? _____ and its location known to all team members? _____
3. Site safety plan readily available and its location known to all team members? _____

Meeting shall be attended by all personnel who will be working within the exclusion area. Daily informal update meetings will be held when site tasks and/or conditions change.

ATTENDEES

(Expand on back of sheet if necessary)

Name Printed	Signature

Meeting Conducted by: _____ _____

(Print) (Signature)

_____ _____

(Site Safety Coordinator) (Team Leader)

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160 SPEAR STREET, SAN FRANCISCO, CALIFORNIA 94105, TEL. 415/777-2811

International Specialists in the Environment

April 26, 1989

Mr. Ariu Levi
Hazardous Materials Specialist
Alameda County Health Care Services Agency
Department of Environmental Health
Hazardous Materials Division
80 Swan Way, Room 200
Oakland, CA 94621

Dear Mr. Levi:

Ecology and Environment, Inc. (E & E), on behalf of Southern Pacific Transportation Company (SPTCo.), is pleased to submit this Plan of Correction for property referred to as 744 and 758 High Street in Oakland, CA. This Plan of Correction is in response to a letter request from your agency to SPTCo. dated March 2, 1989. The scope of work presented in the Plan of Correction is designed to characterize the extent of soil contamination at the property and also groundwater contamination, if soil contamination occurs at levels and locations that could potentially contribute to groundwater contamination. This Plan of Correction does not address remediation design. SPTCo. feels that further characterization is needed before the scope of remediation can be accurately determined.

E & E looks forward to implementing the scope of work presented in this Plan of Correction. Feel free to contact myself or John Moe at Southern Pacific (415-541-2557) concerning any questions or comments.

Sincerely,

Robert H. Enkeboll

Robert H. Enkeboll

mbe/levi/1

recycled paper